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ABSTRACT

Data from the National Adult Literacy Study (NALS) are used to analyze the prose, document, and quantitative literacy of U.S. teachers and compare them to the literacy of other adults. More than 26,000 people were interviewed for the NALS. As a group, teachers score relatively high in prose, document, and quantitative literacy, and there are no significant differences between male and female teachers or between elementary and secondary school teachers. About half of teachers score at Levels 4 and 5, the 2 highest levels, on the 3 literacy competence scales, compared to about 20% of adults throughout the United States. On average, teachers perform as well as college-educated adults across all three scales. Although teachers compare well with members of other professions in many areas, there are large differences in earnings between teachers and other managerial and professional workers, with teacher earnings near the bottom of the list. The NALS data show teachers to be a labor market bargain, comparing favorably with other professionals in their literacy skills, yet earning considerably less. An appendix contains data tables. (Contains 12 figures and 8 tables.) (SLD)

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ED 429 106

POLICY INFORMATION REPORT

How Teachers Compare:

The Prose, Document, and Quantitative Skills of America's Teachers

TM029645

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This report was written by:

Barbara A. Bruschi
Richard J. Coley
Educational Testing Service

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As education becomes ever more important to the American public, teachers become ever more scrutinized — at best they have been cast as reticent participants in education reform efforts. More recently, however, teachers are being viewed as key to any effort at education reform.

SAT scores of college-bound seniors who indicate that they intend to major in teacher education are found to be lower, on average, than their classmates' scores — but the academic abilities of those who actually make it into the classroom are not tracked. Controversial results from a teacher licensing test in Massachusetts have added fuel to the fire, creating disturbing national headlines and increasing the level of teacher scrutiny.

Valid data about how teachers compare to people in other occupations are hard to come by. Indeed, how do we compare the quality of nurses, social workers, dentists, and lawyers? Their capability is the sum of their personal qualities, education, experience, and motivation, to name just a few factors. No single measure of one dimension can possibly be adequate for such a judgment.

That said, a national survey is available that tells us how "literate" — using a broad definition — the nation's adults are. The National Adult Literacy Survey (NALS) is described in this report by authors Bruschi and Coley. By paring down the critical question to how well teachers can deal with prose, document, and quantitative problems that are regularly encountered in the workplace and daily life, we can see how teachers compare with other adults, to adults with comparable education levels, and to other professionals and managers, as well as how much people at different levels of literacy are paid.

In *How Teachers Compare*, Bruschi and Coley analyze the NALS data to describe the prose, document, and quantitative literacy of America's teachers and compare them to the literacy of other adults. One will learn from this report that teachers compare well, although they do vary considerably — as do individuals in all occupations, professional and otherwise.

The reader may not always be impressed with the overall level of the literacy skills displayed by adults, or college graduates, or teachers, or people in other professions. In a report issued a few years ago, *Learning by Degrees*, Archie Lapointe and I express concern about the frequently modest performance of many college graduates in NALS. Of course, we also recognize that many people do not put forth their best efforts on the assessments in these kinds of studies, since nothing is at stake. It is more likely that comparative performance — of the kind presented in this report — tells us more than absolute performance.

How Teachers Compare has no pretension of settling the debate over the quality of America's teaching force; but it does present carefully collected information that permits addressing some important questions. And the data presented compare exceedingly well to that which have been carelessly used in a great many stories about teachers' capabilities.

Paul E. Barton, Director
ETS Policy Information Center

The data in this report are from the National Adult Literacy Survey (NALS) conducted by the National Center for Education Statistics of the U.S. Department of Education.

The authors thank Joan Baratz-Snowden of the American Federation of Teachers; Ronald D. Henderson of the National Education Association; Mary Rollefson of the U.S. Department of Education; and Drew Gitomer, Howard Wainer, Harold Wenglinsky, and Kentaro Yamamoto of Educational Testing Service for their thoughtful reviews. These reviewers may not agree with all of the views and interpretations contained in this report.

The authors also thank Norma Norris for expertly analyzing NALS data, Carla Cooper for doing the desktop publishing, Janet Spiegel for editing, Ricardo Bruce for designing the report's cover, and Jim Chewning for coordinating production.

SUMMARY AND HIGHLIGHTS

Education reform is currently unfolding across the nation, and teachers and teaching are in the spotlight. Concerns about teacher quality abound, fed most recently by results from the Massachusetts teacher licensing test.

While many have blamed teachers for what they consider low achievement among American students, people are steadily realizing that, because of student demographics and teacher retirements, schools will have to hire some 2 million new teachers over the next decade or so. On top of that, there is momentum in many states to reduce class size, and at the same time, apply more rigorous standards to those entering the teaching profession.

There is simply no escaping the fact that teachers will play a major part in solving the nation's education problems. Capable teachers produce achieving students, so it is important to know how capable our teachers are. One source of such information is the National Adult Literacy Survey (NALS), which provides measures of literacy — across prose, document, and quantitative scales — and allows us to compare literacy levels of teachers with those of other adults. This report presents results from these comparisons:

- As a group, teachers score relatively high in prose, document, and quantitative literacy; there are no significant differences in scores between male and female teachers or between elementary and secondary teachers.

- About half of teachers score at Levels 4 and 5 (the two highest levels) on the three literacy scales, compared to about 20 percent of other adults nationwide.

- On average, teachers perform as well as other college-educated adults across all three literacy scales. Teachers with four-year degrees perform similarly to others with four-year degrees, and teachers with graduate studies or degrees perform at a comparable level to other adults with graduate studies or degrees.

- In prose literacy, teachers score higher, on average, than managers and administrators, real estate and food service managers, and designers. They perform at a similar level with lawyers, electrical engineers, accountants and auditors, marketing professionals, financial managers, physicians, personnel and training professionals, social workers, and education administrators and counselors. Only computer systems analysts score significantly higher in prose literacy than teachers.

- In document literacy, teachers perform about the same as in prose literacy, except that they also score lower than electrical engineers.

- In quantitative literacy, teachers are outperformed by electrical engineers, lawyers, accountants and auditors, and computer systems analysts — all people who represent quantitative and analytic occupations. They perform comparably to other managers and professionals, and outscore real estate and food service managers and designers.

- Overall, weekly wages increase with the level of literacy for both teachers and other college-educated adults. However, there are differences in earnings between teachers and other college graduates at each level of literacy. For example, teachers scoring at Level 5 on the prose scale earn $574 a week, compared to $796 a week earned by other college graduates at that level.

- There are large differences in earnings between teachers and other managerial and professional workers. Teachers rank near the bottom of the list.

The NALS data present teachers as a labor market bargain, comparing favorably with other professionals in their literacy skills, yet earning less. We need to abandon stereotypes about teachers that have gained currency, such as that teachers are less able than others who go into professions commonly regarded as more prestigious. And we need to recognize that we pay teachers considerably less than other professionals with comparable capacities for dealing with prose, document, and quantitative literacy tasks.

INTRODUCTION

Nine out of 10 Americans believe that the best way to improve student achievement is to have a qualified teacher in every classroom. Results from a landmark public-opinion poll, conducted by Recruiting New Teachers Inc. (RNT) and public opinion analyst Louis Harris, support the growing sentiment among educators and policymakers that the quality of America's teaching force is key to its meeting the goals of educational reform.[1]

Once the issue of student safety is addressed, the public believes that ensuring teacher quality is the most important way to improve education today — more important than standards, tests, vouchers, privatization, or school uniforms. And this perception is supported by recent research showing that teachers' expertise is indeed linked to higher student achievement.[2] So teachers are being viewed as part of the solution to the nation's educational problems, rather than as a cause of them.

This recognition comes at an especially important time in our history. The U.S. Department of Education estimates that we will need some 2 million new teachers over the next decade as school enrollment increases and many of our current teachers retire. There are already some problems finding qualified teachers in bilingual education, special education, mathematics, and science. And some school districts, particularly those that enroll students with the most educational need, have problems attracting teachers.

Against this backdrop, states and teacher certification bodies are raising the bar for teacher quality to new heights, in a flurry of teacher testing activity. Most states now require potential teachers to pass a test before being admitted into a teacher education program and/or before being certified to teach. States such as Georgia, Ohio, and Pennsylvania are in the process of raising cutoff scores on their certification tests. New Hampshire is beginning to test potential teachers for the first time, while Virginia recently set the highest cutoff in the country for entry into teaching.[3]

As the nation moves to increase the quality of the teaching force, the conventional wisdom is that many of our teachers are drawn from the bottom of their high school and college classes. New opportunities in other fields for minority and female college graduates have contributed to cutting off a major pipeline of teaching talent. Research from the 1980s suggests that individuals with less academic ability enter and continue through the teacher education pipeline and remain in teaching. According to this research, at each stage — from selecting education as a college major, to enrolling in teacher education, to applying for and accepting a teaching job, to deciding to make teaching a career — those with higher tested abilities leave or decide not to enter teaching.[4]

Much of the negative evidence about teacher quality is based on the relatively low average SAT scores of college-bound seniors who say they will major in education. Of course, we do not know what major these students actually end up pursuing in college, if they did enter a teacher education program, or whether those who do pursue teaching ever become teachers. More recent, negative evidence comes from states like Massachusetts, where high failure rates at most of the state's colleges and universities on a new exam for teacher licensing has ruffled the feathers of state policymakers and made national headlines.[5]

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1 Recruiting New Teachers Inc., *The Essential Profession: A National Survey of Public Attitudes Toward Teaching, Educational Opportunity and School Reform*, Belmont, MA: 1998. (http://www.rnt.org/tep.html).

2 National Commission on Teaching and America's Future, *What Matters Most: Teaching for America's Future*, September 1996 and The Education Trust, *Good Teaching Matters: How Well-Qualified Teachers Can Close the Gap*, Education Trust, Summer 1998.

3 Jeff Archer, "States Raising Bar for Teachers Despite Pending Shortage," *Education Week*, March 25, 1998.

4 For a review, see Mary R. Rollefson and Thomas M. Smith, "Do Low Salaries Really Draw the Least Able Into the Teaching Profession?," in D.M. Byrd and D.J. McIntyre (eds.), *Research on the Education of Our Nation's Teachers: Teacher Education Yearbook V*, Corwin Press, 1997.

5 Kerry A. White, "Massachusetts Reacts to More Test Data; Teacher Proposal Outlined," *Education Week*, August 5, 1998.

Other research has found only small differences in ability scores when comparing former teachers to those who remained in teaching.[6] This research did find that those who entered teaching, but not immediately after college, and those who left teaching but returned later, had higher scores. Additionally, there is increasing evidence that some new teachers come from supply sources other than traditional teacher education programs and that these other sources may bring individuals of higher ability levels into the classroom.[7]

Recent research paints a somewhat different picture. Rather than teachers in general being viewed as mediocre, the public, including teachers, has been recognizing that there are merely a few ineffective teachers who should be removed. In fact, one study found that 85 percent of the public trusts teachers to make sound educational decisions.[8]

The RNT and Harris poll cited earlier provides support for this perspective. It found that about 70 percent of respondents considered their community's teachers either "highly qualified" or "well qualified." And in a recent survey by the American Federation of Teachers, teachers indicated that only 5 percent of their colleagues are poor teachers.[9]

Whatever evidence or data people examine, they can reasonably conclude that there is room for improvement and more accountability in teaching. Many initiatives are being developed and continue at the federal, state, and institutional levels to address teacher quality issues at each stage of the teacher education, certification, and professional development process.

Why all this matters, of course, is because we believe the more academically talented a teacher is, the more his or her students will learn. What we have lacked is a uniform measure of academic ability for the nation's teachers. The 1992 National Adult Literacy Survey (NALS) provides such a measure and allows us to compare teachers with other occupations. Prose literacy is provided by NALS and is one of the best available measures of verbal ability, a factor identified by research as being associated with teacher quality.[10] NALS also allows us to examine the earnings of teachers compared to other workers with similar occupations and levels of education.

. . . .

The purpose of this report is to:

- describe the prose, document, and quantitative literacy of the nation's teachers
- compare the literacy levels of teachers with those of other adults and with other adults who have similar levels of education
- compare the literacy levels of teachers with those of people in other managerial and professional occupations
- compare the wages of teachers with those of people in other managerial and professional occupations

Before turning to the results, we provide a brief description of the National Adult Literacy Survey.

6 Barbara Heyns, "Educational Defectors: A First Look at Teacher Attrition in NLS-72," *Educational Researcher*, 17(3), 24-32, 1988.

7 An example of a nontraditional program is Troops to Teachers, launched by the U.S. Department of Defense in 1994, which helps people who leave military service to secure teaching jobs. In the past four years, some 3,000 people from all branches of the armed services and the Coast Guard have found jobs as teachers, primarily in the 20 states with the most military bases. Districts in California, Florida, Georgia, Texas, and Virginia have hired hundreds of veterans for their classrooms. The recruits are much more likely than traditional applicants to be male, members of minority groups, willing to work in hard-to-staff urban and rural schools, and qualified to teach mathematics, science, and special education ("Expiring 'Troops to Teachers' Project Outfits Classrooms with Professionals in Demand", *Education Week*, October 14, 1998).

8 J. Johnson and J. Immerwahr, *First Things First: What Americans Expect from Public Schools*, Public Agenda Foundation, 1994.

9 American Federation of Teachers, *Teacher Quality and Tenure: AFT Teachers' Views — 1997*.

10 Linda Darling-Hammond and L. Hudson, *Indicators of Teacher and Teaching Quality*, RAND, 1986.

Measuring Literacy

This section of the report describes NALS and its definition of literacy. NALS provides the most detailed portrait that has ever been available on the conditions of literacy in the United States — and on the unrealized potential of the nation's citizens.[11]

For the 1992 survey, trained staff interviewed nearly 13,600 individuals age 16 and older, who were randomly selected to represent the U.S. adult population; state samples and a sample of federal and state prison inmates pushed the final number of individuals surveyed to more than 26,000. Each participant was asked to spend about an hour responding to a series of diverse literacy tasks, as well as to questions about his or her demographic characteristics, educational background, reading practices, and other areas related to literacy.

To analyze the literacy skills of teachers, or of any other group, it is first necessary to define what is meant by "literacy." The term is often used as the opposite of "illiteracy," which is typically interpreted to mean not being able to read at all, decode the printed word, or comprehend what is written. But literacy has a much richer and deeper meaning than that. Its dictionary definitions range from being able to read and write, to being a well-informed, educated person, to being familiar with literature.

NALS was guided by the following definition of literacy, adopted by a broadly representative group of experts:

> *Using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential.*

NALS focused on three areas of literacy proficiency — prose, document, and quantitative.

Prose literacy — the knowledge and skills needed to understand and use information from texts that include editorials, news stories, poems, and fiction; for example, finding a piece of information in a newspaper article, interpreting instructions for a warranty, inferring a theme from a poem, or contrasting views expressed in an editorial.

Document literacy — the knowledge and skills required to locate and use information contained in everyday materials such as job applications, payroll forms, transportation schedules, maps, tables, and graphs; for example, locating a particular intersection on a street map, using a schedule to choose the appropriate bus, or entering information on an application form.

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11 NALS was funded by the U.S. Department of Education and administered by Educational Testing Service, in collaboration with Westat Inc. The first volume in the series offers an overview of the results. See Irwin S. Kirsch, Ann Jungeblut, Lynn Jenkins, and Andrew Kolstad, *Adult Literacy in America: A First Look at the Results of the National Adult Literacy Survey*, prepared by Educational Testing Service for the National Center for Education Statistics, U.S. Department of Education, September 1993. Additional NALS reports offer a more detailed look at particular issues, including literacy in the workforce, literacy and education, literacy among older adults, literacy in the prison population, literacy and cultural diversity, and literacy practices.

Quantitative literacy — the knowledge and skills required to apply arithmetic operations, either alone or sequentially, using numbers embedded in printed materials; for example, balancing a checkbook, figuring out a tip, completing an order form, or determining an amount of interest from a loan advertisement.

Based on their performance on the literacy tasks, respondents were assigned scores on the three proficiency scales, each ranging from 0 to 500. While most previous studies of literacy have attempted to identify the number of "illiterates," the goal of NALS was different — to profile the nation's literacy skills. Thus, there is no single point on the literacy scale that separates illiterates from literates, per se. Rather, each scale is divided into five levels of proficiency, each encompassing a range of scores.

Level 1 - *scores from 0 to 225*
Level 2 - *scores from 226 to 275*
Level 3 - *scores from 276 to 325*
Level 4 - *scores from 326 to 375*
Level 5 - *scores from 376 to 500*

Individuals scoring within one of these scale levels have a high probability of performing the tasks at that level successfully.[12] Those who performed at Level 1 demonstrated the lowest literacy proficiencies, while those at Level 5 displayed the highest proficiencies. Similarly, the tasks that characterized Level 1 were the least challenging in the assessment, while those associated with Level 5 were the most difficult.

Sample tasks are provided here to illustrate the types of literacy skills exhibited by those who performed at each level. To avoid excessive detail, we have only provided example tasks for prose literacy. Readers who would like to know more about the tasks or see additional examples should refer to other NALS reports.[13]

LEVEL 1

Prose. What does it mean to score at Level 1? Some individuals scoring at this level on the prose scale demonstrate the ability to read relatively short pieces of text, such as a brief newspaper article, to find a piece of information that is identical to or synonymous with information given in a directive. Typically, little or no distracting information (information that seems plausible but is incorrect) is present in such tasks. Individuals who perform at Level 1 may succeed in prose tasks that ask them to:

- identify a country mentioned in a short article (score of 149)
- locate a piece of information in a sports article (score of 210)
- underline a sentence explaining the action stated in a short article (score of 225)

Document. Some individuals who score at Level 1 are able to locate a piece of information based on a literal match between the directive and the document, as long as little, if any, distracting information is present. Some adults at this level also display the ability to enter basic information about themselves onto an application form or other type of document. Specifically, individuals at Level 1 may be able to:

- sign their name on a brief form (score of 60)
- locate a meeting time on a form (score of 180)
- use a pie chart to locate a type of vehicle that had a given number of sales (score of 214)

Quantitative. Some individuals who score at Level 1 demonstrate the ability to perform single,

12 A high probability is defined as at least 80 percent of the time. Individuals would have a small chance of performing tasks at a higher level.
13 See the original NALS report cited in footnote 11. A summary is also provided in Paul E. Barton. *Becoming Literate About Literacy*, Policy Information Report, ETS Policy Information Center, 1994.

relatively simple arithmetic operations, such as addition. The numbers to be used in such tasks are provided, and the operation to be performed is specified. Those scoring at the lowest level on the quantitative scale may be able to:

- total a bank deposit entry (score of 191)

LEVEL 2

Prose. Individuals scoring at this level on the prose scale demonstrate the ability to locate a piece of information in a piece of text even when distracting information is present. They also appear to have little difficulty integrating, comparing, and contrasting two or more pieces of information found in printed material. Individuals at this level are likely to be successful on literacy tasks that ask them to:

- underline the meaning of a term in a brochure on government benefits (score of 226)
- locate two types of information in a sports article (score of 250)
- interpret instructions from an appliance warranty (score of 275)

Document. Those scoring at Level 2 on the document scale display skill at matching a piece of information in a form or other type of document with information in a directive, even when distracting information is present. Low-level inferences are sometimes required in performing such tasks. In addition, individuals at Level 2 are likely able to:

- locate an intersection on a street map (score of 230)
- locate eligibility information in a table of employee benefits (score of 246)
- identify and enter background information on a Social Security card application (score of 259)

EXAMPLE TASK FOR PROSE LITERACY, LEVEL 1

Underline the sentence that tells what Ms. Chanin ate during the swim.

Swimmer completes Manhattan marathon

The Associated Press

NEW YORK—University of Maryland senior Stacy Chanin on Wednesday became the first person to swim three 28-mile laps around Manhattan.

Chanin, 23, of Virginia, climbed out of the East River at 96th Street at 9:30 p.m. She began the swim at noon on Tuesday.

A spokesman for the swimmer, Roy Brunett, said Chanin had kept up her strength with "banana and honey" sandwiches, hot chocolate, lots of water and granola bars."

Chanin has twice circled Manhattan before and trained for the new feat by swimming about 28.4 miles a week. The Yonkers native has competed as a swimmer since she was 15 and hoped to persuade Olympic authorities to add a long-distance swimming event.

The Leukemia Society of America solicited pledges for each mile she swam.

In July 1983, Julie Ridge became the first person to swim around Manhattan twice. With her three laps, Chanin came up just short of Diana Nyad's distance record, set on a Florida-to-Cuba swim.

Quantitative. Individuals at Level 2 display the ability to perform a single arithmetic operation using numbers that are given to them or that can easily be located in printed material. Adults at this level are likely able to:

- calculate postage and fees for certified mail (score of 238)
- determine the difference in price between tickets for two shows (score of 246)
- calculate the total cost of purchases from an order form (score of 270)

LEVEL 3

Prose. Individuals scoring at Level 3 on the prose scale demonstrate the ability to match information in a piece of printed material with information in a directive when low-level inferences are required. They also display skill at integrating information from dense or lengthy text. Level 3 scorers are likely to succeed at literacy tasks asking them to:

- write a brief letter explaining a billing error (score of 288)
- find a sentence in a news article that interprets a situation (score of 304)
- read a lengthy article to identify behaviors that meet a stated condition (score of 316)

Document. Individuals performing at Level 3 appear to have little difficulty integrating several pieces of

EXAMPLE TASK FOR PROSE LITERACY, LEVEL 2

A manufacturing company provides its customers with the following instructions for returning appliances for service:

When returning appliance for servicing, include a note telling as clearly and as specifically as possible what is wrong with the appliance.

A repair person for the company receives four appliances with the following notes attached. Circle the letter next to the note which best follows the instructions supplied by the company.

A The clock does not run correctly on this clock radio. I tried fixing it, but I couldn't.

B My clock radio is not working. It stopped working right after I used it for five days.

C The alarm on my clock radio doesn't go off at the time I set. It rings 15-30 minutes later.

D This radio is broken. Please repair and return by United Parcel Service to the address on my slip.

information from one or more documents. They also display skill at using and interpreting rather complex tables and graphs containing information that is either irrelevant or inappropriate to the task. Adults at this level can:

- identify information in a bar chart showing energy sources for various years (score of 277)

- enter information into an automobile maintenance record form (score of 323)

Quantitative. Individuals at Level 3 demonstrate skill at performing tasks in which two or more numbers must be found in a piece of printed material to solve an arithmetic problem. The mathematical operation(s) to be performed can be determined from the terms used in the directive. Some of the tasks in this level involve the use of a calculator. Adults at Level 3 are likely able to:

EXAMPLE TASK FOR PROSE LITERACY, LEVEL 3

List two things that Chen became involved in or has done to help resolve conflicts due to discrimination.

IDA CHEN is the first Asian-American woman to become a judge of the Commonwealth of Pennsylvania.

She understands discrimination because she has experienced it herself.

Soft-spoken and eminently dignified, Judge Ida Chen prefers hearing about a new acquaintance rather than talking about herself. She wants to know about career plans, hopes, dreams, fears. She gives unsolicited advice as well as encouragement. She instills confidence.

Her father once hoped that she would become a professor. And she would have also made an outstanding social worker or guidance counselor. The truth is that Chen wears the caps of all these professions as a Family Court judge of the Court of Common Pleas of Philadelphia County, as a participant in public advocacy for minorities, and as a particularly sensitive, caring person.

She understands discrimination because she has experienced it herself. As an elementary school student, Chen tried to join the local Brownie troop. "You can't be a member," she was told. "Only American girls are in the Brownies."

Originally intent upon a career as a journalist, she selected Temple University because of its outstanding journalism department and affordable tuition. Independence being a personal need, she paid for her tuition by working for Temple's Department of Criminal Justice. There she had her first encounter with the legal world and it turned her career plans in a new direction — law school.

Through meticulous planning, Chen was able to earn her undergraduate degree in two and a half years and she continued to work three jobs. But when she began her first semester as a Temple law student in the fall of 1973, she was barely able to stay awake. Her teacher Lynne Abraham, now a Common Pleas Court judge herself, couldn't help but notice Chen yawning in the back of the class, and when she determined that this student was not a party animal but a workhorse, she arranged a teaching assistant's job for Chen on campus.

After graduating from Temple Law School in 1976, Chen worked for the U.S. Equal Employment Opportunity Commission where she was a litigator on behalf of plaintiffs who experienced discrimination in the workplace, and then moved on to become the first Asian-American to serve on the Philadelphia Commission on Human Relations.

Appointed by Mayor Wilson Goode, Chen worked with community leaders to resolve racial and ethnic tensions and also made time to contribute free legal counsel to a variety of activist groups.

The "Help Wanted" section of the newspaper contained an entry that aroused Chen's curiosity — an ad for a judge's position. Her application resulted in her selection by a state judicial committee to fill a seat in the state court. And in July of 1988, she officially became a judge of the Court of Common Pleas. Running as both a Republican and Democratic candidate, her position was secured when she won her seat on the bench at last November's election.

At Family Court, Chen presides over criminal and civil cases which include adult sex crimes, domestic violence, juvenile delinquency, custody, divorce and support. Not a pretty picture.

Chen recalls her first day as judge, hearing a juvenile dependency case — "It was a horrifying experience. I broke down because the cases were so depressing," she remembers.

Outside of the courtroom, Chen has made a name for herself in resolving interracial conflicts, while glorying in her Chinese-American identity. In a 1986 incident involving the desecration of Korean street signs in a Philadelphia neighborhood, Chen called for a meeting with the leaders of that community to help resolve the conflict.

Chen's interest in community advocacy is not limited to Asian communities. She has been involved in Hispanic, Jewish and Black issues, and because of her participation in the Ethnic Affairs Committee of the Anti-Defamation League of B'nai B'rith, Chen was one of 10 women nationwide selected to take part in a mission to Israel.

With her recently won mandate to judicate in the affairs of Pennsylvania's citizens, Chen has pledged to work tirelesaly to defend the rights of its people and contribute to the improvement of human welfare. She would have made a fabulous Brownie.

— Jessica Schultz

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- calculate the difference between the regular and sale prices of an item in an advertisement (score of 278)
- determine the discount from an oil bill if paid within 10 days (score of 308)
- calculate miles per gallon using information from a mileage record chart (score of 321)

LEVEL 4

Prose. Individuals scoring at this level display the ability to match multiple pieces of information in a piece of writing. Further, they appear to be able to integrate or synthesize information from complex or lengthy pieces of text and to make complex inferences about what they read. They are likely to succeed at tasks that ask them to:

- state in writing an argument made in a lengthy newspaper article (score of 328)
- contrast views expressed in two editorials on fuel-efficient cars (score of 359)
- compare two metaphors used in a poem (score of 374)

Document. Individuals at Level 4 are able to make high-level inferences to interpret various types of documents. They also appear to have little difficulty performing tasks that involve the use of conditional information. They are likely able to:

- use a table to identify the percentage of cases that meet specified conditions (score of 342)

EXAMPLE TASK FOR PROSE LITERACY, LEVEL 4

Contrast Dewey's and Hanna's views about the existence of technologies that can be used to produce more fuel-efficient cars while maintaining the size of the car.

Face-Off: Getting More Miles Per Gallon

Demand cars with better gas mileage

By Robert Dewey
Guest columnist

WASHINGTON — Warning: Automakers are resurrecting their heavy-metal dinosaurs, aka gas guzzlers.

Government reports show that average new-car mileage has declined to 28.2 miles per gallon — the 1986 level. To reverse this trend, Congress must significantly increase existing gas-mileage standards.

More than half our Nobel laureates and 700 members of the National Academy of Sciences recently called global warming "the most serious environmental threat of the 21st century." In 1989, oil imports climbed to a near-record 46% of U.S. consumption. Increasing gas mileage is the single biggest step we can take to reduce oil imports and curb global warming. Greater efficiency also lowers our trade deficit (oil imports represent 40% of it) and decreases the need to drill in pristine areas.

Bigger engines and bigger cars mean bigger profits for automakers, who offer us the products they want us to buy. More than ever, Americans want products that have less of an environmental impact. But with only a few fuel-efficient cars to choose from, how do we find ones that meet all our needs?

Government studies show automakers have the technology to dramatically improve gas mileage — while maintaining the 1987 levels of comfort, performance and size mix of vehicles. Automakers also have the ability to make their products safer. The cost of these improvements will be offset by savings at the gas pump!

Cars can average 45 mpg and light trucks 36 mpg primarily by utilizing engine and transmission technologies already on a few cars today. Further improvements are possible by using technologies like the two-stroke engine and better aerodynamics that have been developed but not used.

When the current vehicle efficiency standards were proposed in 1974, Ford wrongly predicted that they "would require either all sub-Pinto-sized vehicles or some mix of vehicles ranging from a sub-subcompact to perhaps a Maverick." At that time, Congress required a 100% efficiency increase; raising gas mileage to 45 mpg requires only a 60% increase.

Americans want comfortable, safe and efficient cars. If automakers won't provide them, Congress must mandate them when it considers the issue this summer.

Let's hope lawmakers put the best interest of the environment and the nation ahead of the automakers' lobbyists and political action committees.

Robert Dewey is a conservation analyst for the Environmental Action Foundation.

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Don't demand end to cars people want

By Thomas H. Hanna
Guest columnist

DETROIT — Do Americans look forward to the day when they'll have to haul groceries, shuttle the kids to and from school or take family vacations in compact and subcompact cars?

I doubt it — which is why U.S. and import carmakers oppose the 40-miles-per-gallon to 45 mpg corporate average fuel economy mandates that some are pushing in Congress, either to curb tailpipe carbon dioxide emissions because of alleged global warming or for energy conservation.

Since the mid-1970s, automakers have doubled the fleet average fuel economy of new cars to 28 mpg — and further progress will be made.

Compact and subcompact cars with mileage of 40 mpg or better are now available, yet they appeal to only 8% of U.S. car buyers.

But to achieve a U.S. fleet average of 40 mpg to 45 mpg, carmakers would have to sharply limit the availability of family-size models and dramatically trim the size and weight of most cars.

There simply are not magic technologies to meet such a standard.

Almost every car now sold in the USA would have to be drastically downsized, and many would be obsolete.

As a result, Americans each year would be unable to buy the vehicles most suited for their needs: mid- and family-size models, luxury automobiles, mini-vans, small trucks and utility vehicles.

The fleet shift to composite and subcompacts could also force the closing of assembly plants, supplier firms and dealerships, at a cost of thousands of U.S. jobs.

Although a growing number of scientists are skeptical of global warming, the issue deserves thorough international scientific evaluation, not premature unilateral U.S. action.

Carbon dioxide emissions from U.S. vehicles total less than 2.0% of worldwide "greenhouse" gases. Even doubling today's corporate average fuel economy for U.S. cars — if technically possible — would cut those gases about 3%.

Whatever the motivation — alleged global warming or energy conservation — the stakes are high for millions of Americans and thousands of U.S. jobs in unrealistic corporate average fuel economy mandates.

Thomas H. Hanna is president and chief executive officer of the Motor Vehicle Manufacturers Association of the United States.

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- use a schedule to determine which bus to take in a given situation (score of 352)

- use a table to identify a pattern of oil exports over time (score of 352)

Quantitative. Individuals at this level have little difficulty performing two or more arithmetic operations in a sequence. They can also perform single arithmetic operations in which the quantities are found in different types of displays, or in which the operations must be inferred from the information given or from prior knowledge. These individuals are likely to succeed when asked to:

- use information in a news article to calculate how much money should go to raising a child (score of 350)

- use an eligibility pamphlet to calculate how much money a couple would receive for basic supplemental security income in one year (score of 368)

EXAMPLE TASK FOR PROSE LITERACY, LEVEL 5

Identify and summarize the two kinds of challenges that attorneys use while selecting members of a jury.

DO YOU HAVE A QUESTION?

QUESTION: What is the new program for scheduling jurors?

ANSWER: This is a new way of organizing and scheduling jurors that is being introduced all over the country. The goals of this program are to save money, increase the number of citizens who are summoned to serve and decrease the inconvenience of serving.

The program means that instead of calling jurors for two weeks, jurors now serve only one day, or for the length of one trial if they are selected to hear a case. Jurors who are not selected to hear a case are excused at the end of the day, and their obligations to serve as jurors are fulfilled for three years. The average trial lasts two days once testimony begins.

An important part of what is called the One Day – One Trial program is the "standby" juror. This is a person called to the Courthouse if the number of cases to be tried requires more jurors than originally estimated. Once called to the Courthouse, the standby becomes a "regular" juror, and his or her service is complete at the end of one day or one trial, the same as everyone else.

Q. How was I summoned?

A. The basic source for names of eligible jurors is the Driver's License list which is supplemented by the voter registration list. Names are chosen from these combined lists by a computer in a completely random manner.

Once in the Courthouse, jurors are selected for a trial by this same computer and random selection process.

Q. How is the Jury for a particular trial selected?

A. When a group of prospective jurors is selected, more than the number needed for a trial are called. Once this group has been seated in the courtroom, either the Judge or the attorneys ask questions. This is called *voir dire*. The purpose of questions asked during *voir dire* is to ensure that all of the jurors who are selected to hear the case will be unbiased, objective and attentive.

In most cases, prospective jurors will be asked to raise their hands when a particular question applies to them. Examples of questions often asked are: Do you know the Plaintiff, Defendant or the attorneys in this case? Have you been involved in a case similar to this one yourself? Where the answer is yes, the jurors raising hands may be asked additional questions, as the purpose is to guarantee a fair trial for all parties. When an attorney believes that there is a legal reason to excuse a juror, he or she will challenge the juror for cause. Unless both attorneys agree that the juror should be excused, the Judge must either sustain or override the challenge.

After all challenges for cause have been ruled upon, the attorneys will select the trial jury from those who remain by exercising peremptory challenges. Unlike challenges for cause, no reason need be given for excusing a juror by peremptory challenge. Attorneys usually exercise these challenges by taking turns striking names from a list until both are satisfied with the jurors at the top of the list or until they use up the number of challenges allowed. Challenged jurors and any extra jurors will then be excused and asked to return to the jury selection room.

Jurors should not feel rejected or insulted if they are excused for cause by the Court or peremptorily challenged by one of the attorneys. The *voir dire* process and challenging of jurors is simply our judicial system's way of guaranteeing both parties to a lawsuit a fair trial.

Q. Am I guaranteed to serve on a jury?

A. Not all jurors who are summoned actually hear a case. Sometimes all the Judges are still working on trials from the previous day, and no new jurors are chosen. Normally, however, some new cases begin every day. Sometimes jurors are challenged and not selected.

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LEVEL 5

Prose. Individuals at this level have little difficulty finding information in dense text that contains a considerable amount of distracting information. They can also make high-level inferences and use specialized background knowledge to help them understand what they read. Level 5 scorers can succeed at tasks asking them to:

- compare the approaches stated in a narrative on growing up (score of 382)
- summarize two ways in which lawyers may challenge prospective jurors (score of 410)
- interpret a brief phrase from a lengthy news article (score of 423)

Document. These individuals have the ability to search through complex displays that contain several pieces of distracting information. They also have little difficulty making high-level inferences and using specialized background knowledge to interpret information in documents. They are likely able to:

- use information in a table to complete a graph, including labeling the axes (score of 378)
- use a table to compare credit cards, identify two categories of comparison, and write about the differences (score of 387)
- use information from a table to write a paragraph about a school survey (score of 395)

Quantitative. Individuals at this level can perform multiple arithmetic operations sequentially. They are also able to find the features of problems in a piece of printed material and to use their background knowledge to determine the quantities or operations needed. People at this literacy level are likely to succeed with tasks that ask them to:

- use an order form to calculate the shipping costs and total costs of items (score of 382)
- use information from a news article to calculate the difference in times for completing a race (score of 405)
- use a calculator to figure the total cost of carpet for a room (score of 421)

Evaluating the Literacy of America's Teachers

As seen in the previous section of this report, NALS collected information on multiple dimensions of literacy. Likewise, there are multiple ways to view the survey's results.

What measure of literacy should be used? Average or mean literacy scores are useful measures that can quickly convey an overall sense of how one group performs compared to another. But while useful, averages or means provide an incomplete picture of the distribution, or range, of achievement across different groups of people, and can mask important differences.

To illustrate this range, we also present data on the percentages of adults who performed at each of the five literacy-scale levels. First, we examine the literacy levels of teachers alongside those of the entire adult population.

Comparing Teachers to the General Population

Like any large group of people measured on a broad scale, teachers exhibit a considerable range of performance on the three literacy scales. The largest group of teachers (about 40 percent) scores at Level 4 on all three scales. The next largest group (about 34 percent) scores at Level 3. Somewhere around 10 percent scores at Level 5, and a minute percentage (about 1 percent) scores at Level 1.[14] These data can be seen in Figure 1.

Fortunately, NALS has a large enough sample of teachers to allow us to examine the literacy levels of different groups of teachers. Figure 1 compares male and female teachers and elementary and secondary teachers, showing that there are no statistically significant score differences between those in either grouping. For this reason, in the rest of this report's comparisons, we present data for teachers as a whole.[15]

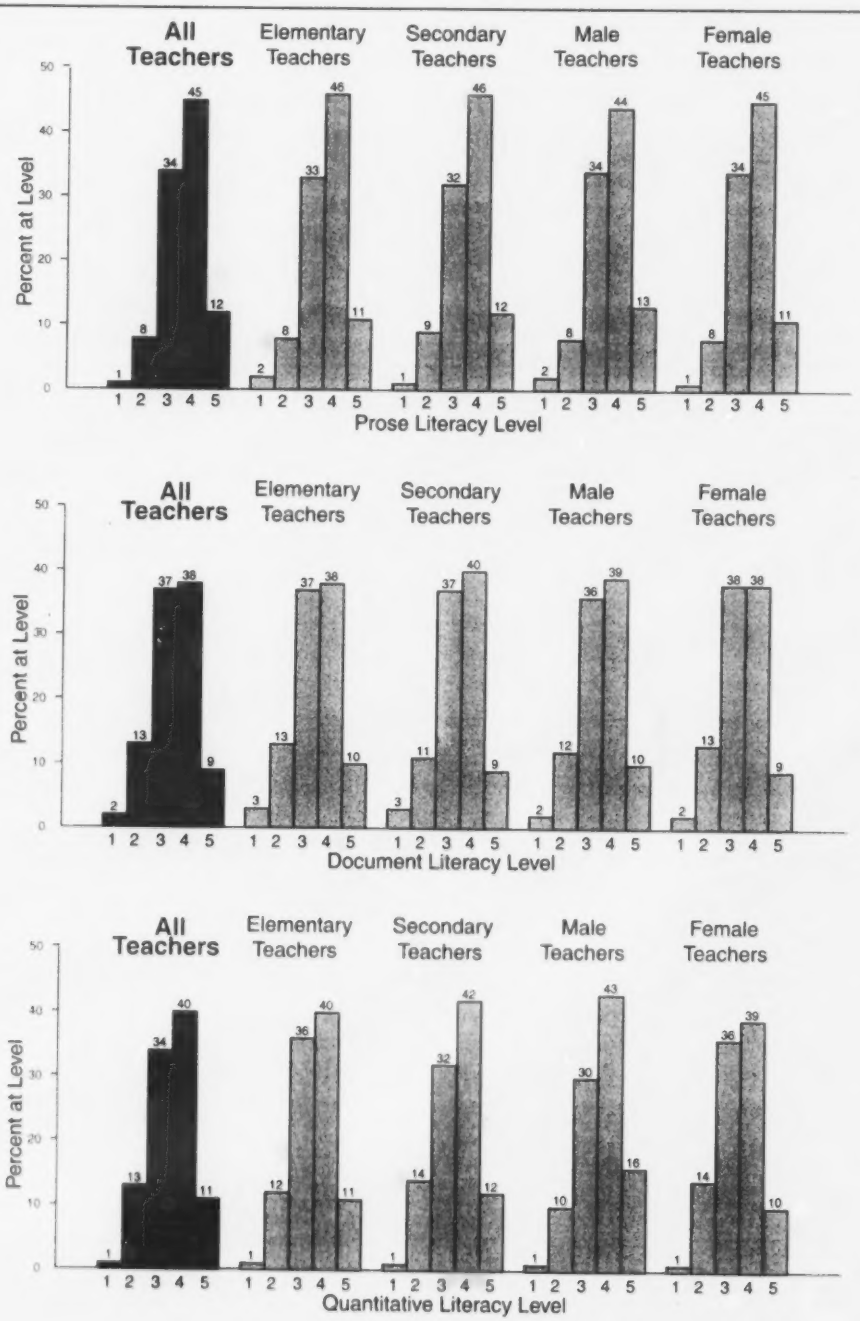
Figure 2 compares the average scores of teachers to those of the total population across all three literacy scales and shows teachers' scores as significantly higher. For example, the average prose literacy score for teachers was 330 — 58 points higher than the average score for the total population (more than a standard deviation). Although this marked the largest difference in scores, teachers also performed significantly better on the document and quantitative scales.

Teachers also were more likely to score at the highest levels on each of the literacy scales. For example, while only about 3 percent of the population scored at Level 5, about 10 percent of teachers scored at that level. About half of U.S. teachers scored at Levels 4 and 5, compared to about 20 percent of the

14 Standard errors and sample sizes are provided in the appendix.

15 Teachers were defined as Pre-K, K, elementary, secondary, and special education teachers.

Figure 1: Distribution of Prose, Document, and Quantitative Literacy of Teachers, by Category



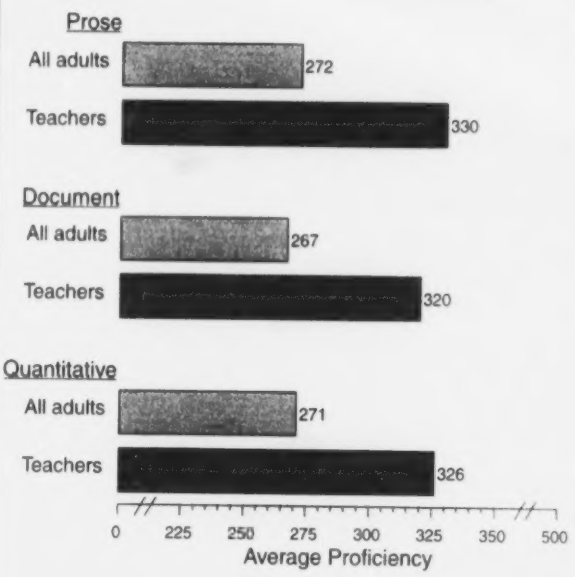
Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

total population. At the other end of the scale, about 22 percent of the population scored at Level 1, the lowest level of literacy, while only 1 percent to 2 percent of teachers performed at this level. Teachers did best on the prose literacy scale, with 57 percent scoring at Levels 4 and 5. These data are shown in Figure 3.

Comparing Teachers to Other College-Educated Adults

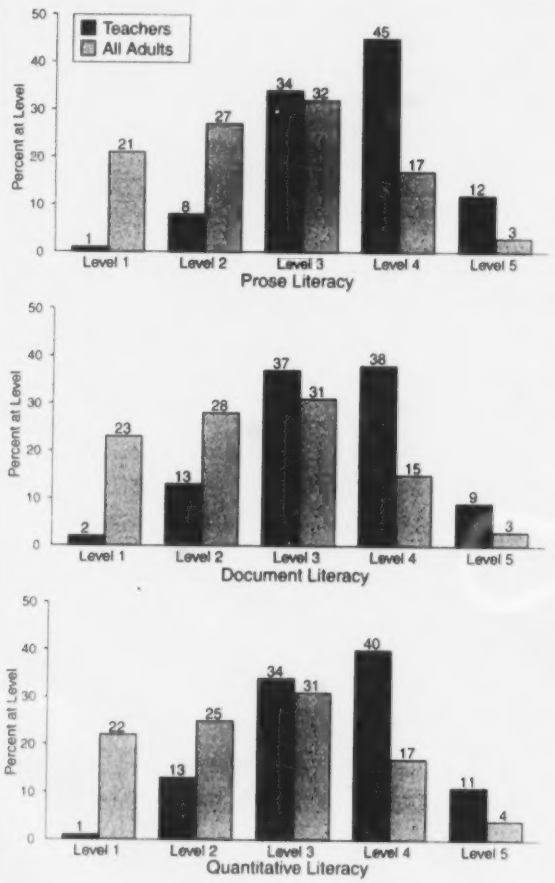
We might expect teachers to perform better on literacy tasks than the total adult population, because teachers have more education — and we know that education is related to literacy. But how do teachers compare to adults with similar levels of education? Figure 4 compares the average prose, document,

Figure 2: Average Prose, Document, and Quantitative Literacy Scores of Teachers Compared to Those of the Total Adult Population



Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

Figure 3: Literacy Levels of Teachers Compared to Those of the Total Adult Population



Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

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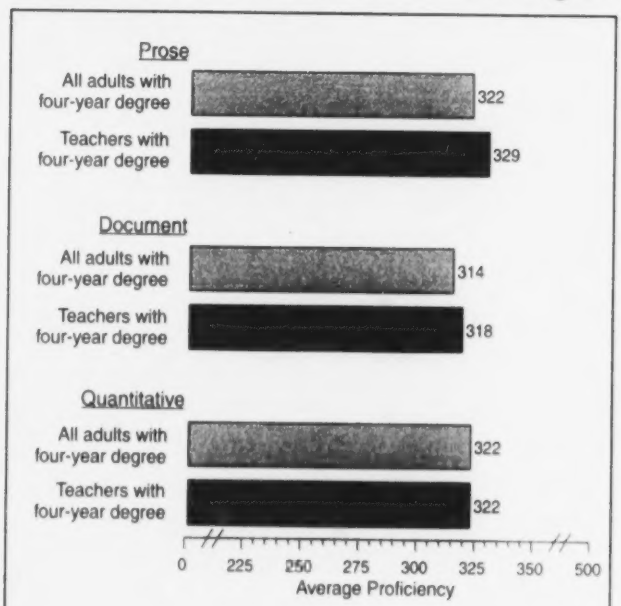
and quantitative literacy scores of teachers with a four-year college degree but no graduate studies (about one-quarter of the teachers in the NALS sample) to the scores of U.S. adults with the same educational level. There were no statistically significant differences in performance between the two populations.

We can also look at Figure 5 and examine the distribution across literacy levels for both groups. For teachers and other adults with a four-year college degree, about 75 percent scored at Levels 3 and 4, and about 10 percent scored at Level 5. Overall, in fact, the distribution across literacy levels was quite similar for both groups.

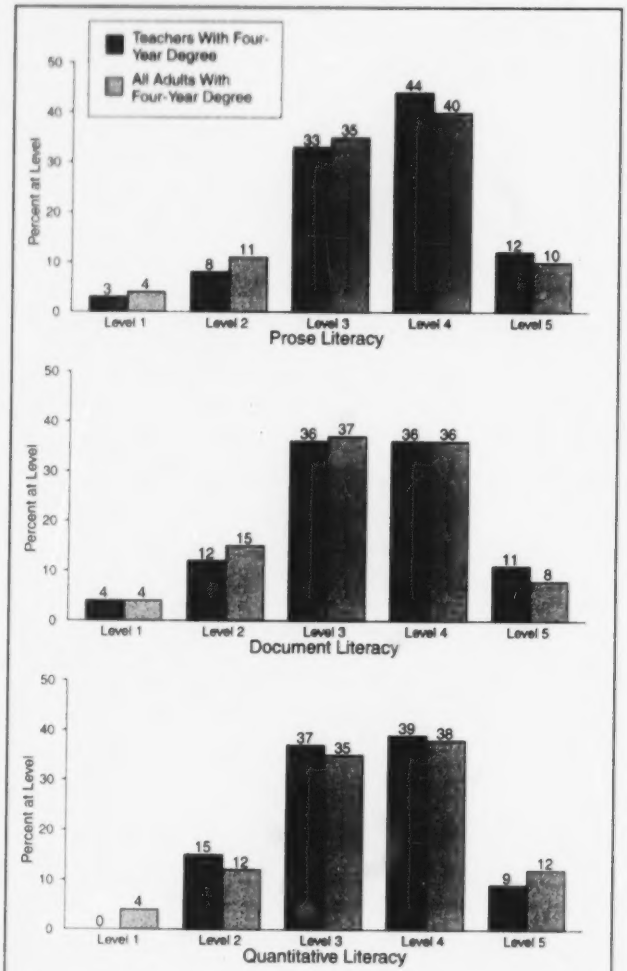
How do teachers with graduate studies or graduate degrees compare to adults with similar levels of education? As

Figure 4: Average Prose, Document, and Quantitative Literacy Scores of Teachers With a Four-Year Degree Compared to Those of All Adults With a Four-Year Degree



Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

Figure 5: Literacy Levels of Teachers With a Four-Year Degree Compared to Those of All Adults With a Four-Year Degree



Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

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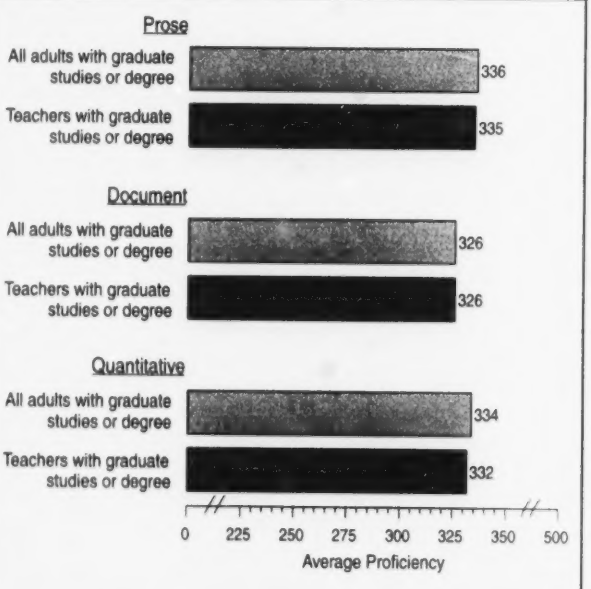
shown in Figure 6, teachers with graduate education had average scores across all three literacy scales that were basically the same as those of other adults with graduate education. Almost two-thirds of the NALS sample of teachers reported having either graduate studies or a graduate degree.

Looking at Figure 7, we can compare the distributions of these two groups across literacy levels and see that they are quite similar. More than half of both groups scored at Levels 4 and 5.

Comparing Teachers to Other Professional and Managerial Occupations

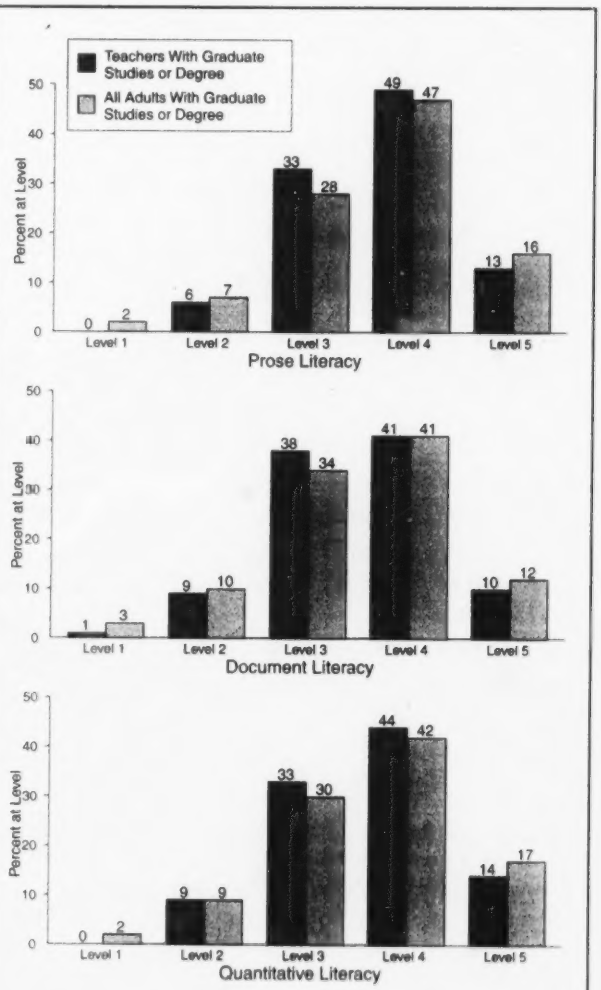
NALS asked respondents to indicate their current or most recent job and sorted the

Figure 6: Average Prose, Document, and Quantitative Literacy Scores of Teachers With Graduate Studies or Degree Compared to Those of the Total Adult Population With Graduate Studies or Degree



Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

Figure 7: Literacy Levels of Teachers With Graduate Studies or Degree Compared to Those of All Adults With Graduate Studies or Degree

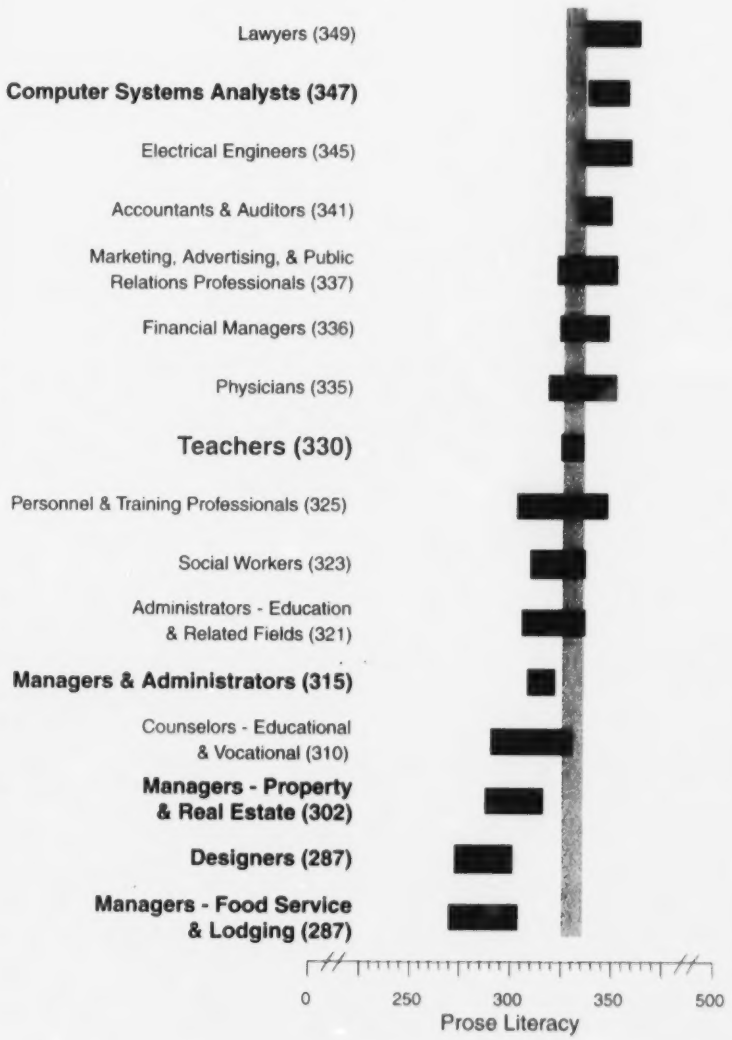

Teachers With Graduate Studies or Degree
All Adults With Graduate Studies or Degree
Percent at Level
0 2 6 7 33 28 49 47 13 16
Level 1 Level 2 Level 3 Level 4 Level 5
Prose Literacy
1 3 9 10 38 34 41 41 10 12
Document Literacy
0 2 9 9 33 30 44 42 14 17
Quantitative Literacy

Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

resulting information into occupational categories, using the Census Classification for Industries and Occupations. These categories were then combined into four occupational groupings, one of which was termed "managerial, professional, or technical." This category contained teachers, computer systems analysts, lawyers, etc., and scored highest among the occupational categories across all three literacy scales. We now compare the performance of U.S. teachers to that of other professionals.

Figure 8 shows the comparison for prose literacy. The black horizontal bars represent the confidence intervals around the average scores for each occupation; the shaded vertical area represents the confidence band for teachers' scores, allowing them to be easily compared to those of other professionals. Only the horizontal bars that do not touch the vertical shaded area represent significantly different scores from teachers, from a statistical perspective.

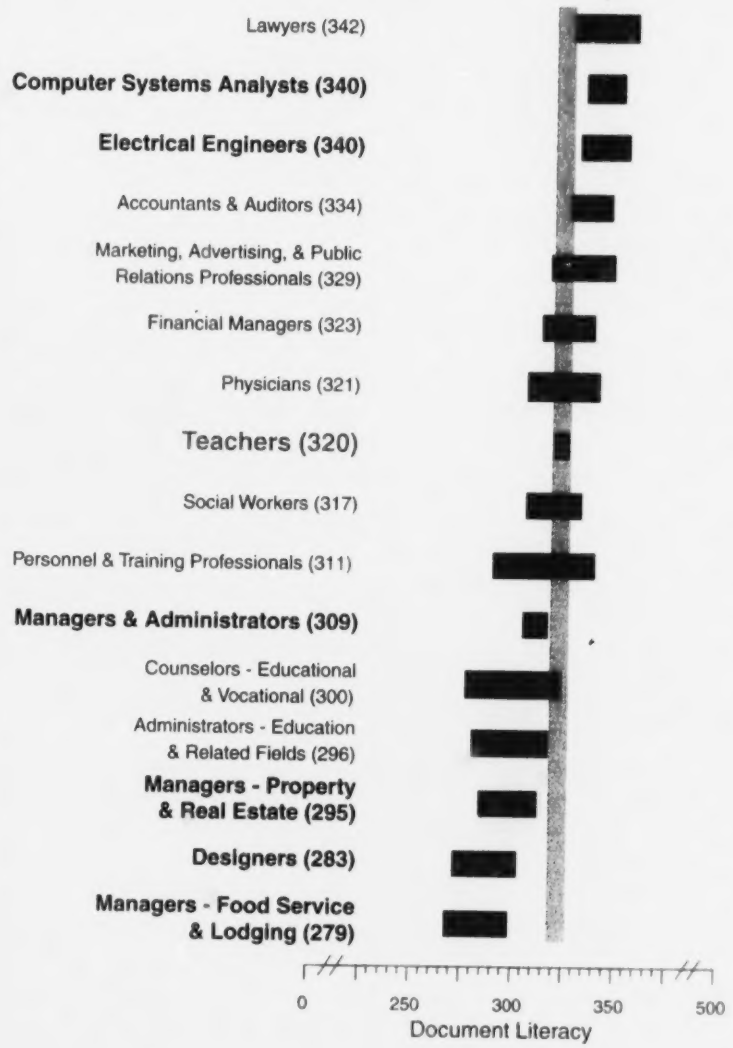
Figure 8: Average Prose Literacy Scores of Teachers Compared to Other Managers and Professionals



Note: Occupations in bold type have average scores that are statistically significantly different from teachers. While other score differences may appear large, they are not statistically significant. Bars represent the confidence intervals around the average scores. The vertical shaded area represents the confidence band for teachers' average score and is intended to facilitate comparisons.

Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

Figure 9: Average Document Literacy Scores of Teachers Compared to Other Managers and Professionals



Note: Occupations in bold type have average scores that are statistically significantly different from teachers. While other score differences may appear large, they are not statistically significant. Bars represent the confidence intervals around the average scores. The vertical shaded area represents the confidence band for teachers' average score and is intended to facilitate comparisons.

Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

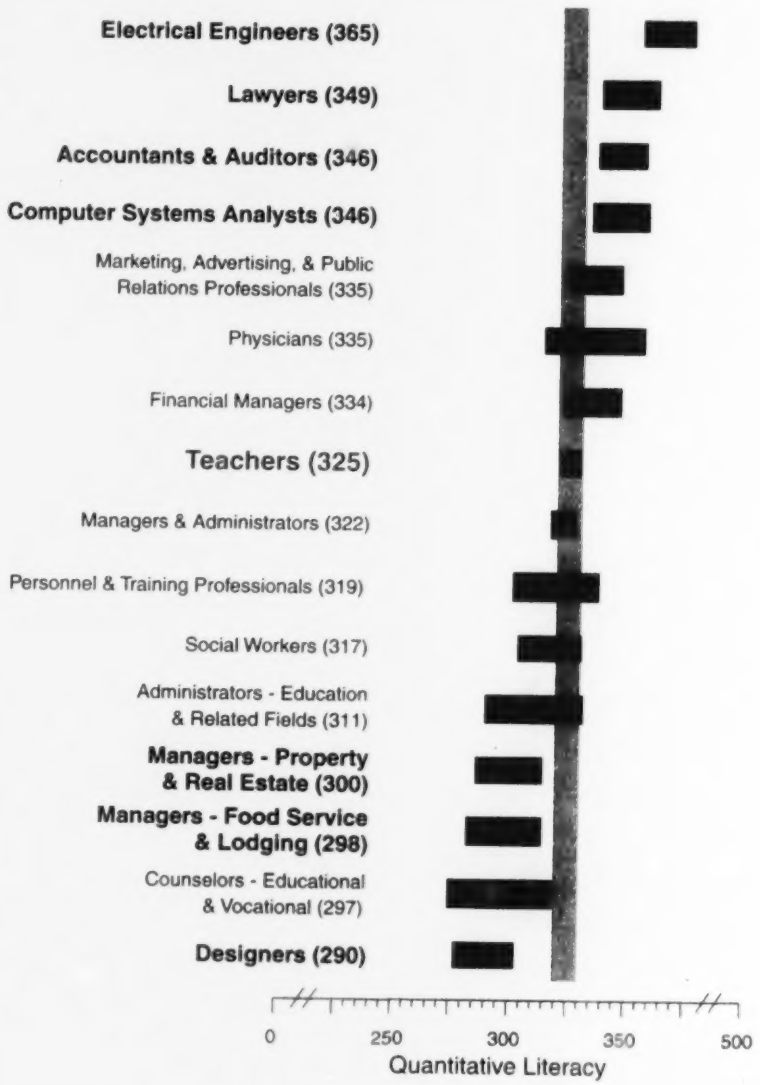
So on the prose literacy scale, only computer systems analysts scored significantly higher than teachers. Teachers performed at a comparable level to lawyers, electrical engineers, accountants and auditors, marketing professionals, financial managers, physicians, personnel and training professionals, social workers, education administrators, and educational and vocational counselors; they scored significantly higher than managers and administrators, real estate and food service managers, and designers.

On the document literacy scale, teachers fared just about as well as in prose literacy, although in addition to computer systems analysts, they scored significantly lower than electrical engineers (Figure 9). Teachers did not perform significantly different from lawyers, accountants and auditors, marketing professionals, financial managers, physicians, social workers, personnel and training professionals, and educational counselors and administrators.

On the other hand, they significantly outperformed managers and administrators, real estate and food service managers, and designers.

Teachers scored least well in the quantitative area, significantly below electrical engineers, lawyers, accountants and auditors, and computer systems analysts (people in highly quantitative and analytic fields). Much like their performance on the prose and document scales, however, teachers performed comparably to the other managers and professionals in this category and outscored designers and real estate and food service managers. These comparisons are shown in Figure 10.

Figure 10: Average Quantitative Literacy Scores of Teachers Compared to Other Managers and Professionals



Note: Occupations in bold type have average scores that are statistically significantly different from teachers. While other score differences may appear large, they are not statistically significant. Bars represent the confidence intervals around the average scores. The vertical shaded area represents the confidence band for teachers' average score and is intended to facilitate comparisons.

Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

The Relationship Between Literacy and Income

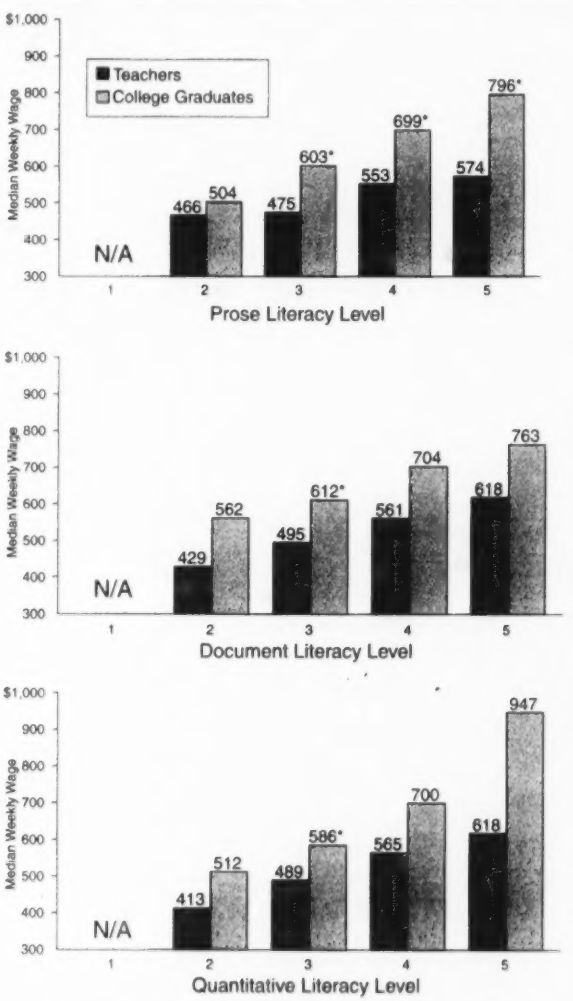
NALS found a strong relationship between literacy and earnings. On average, individuals with higher levels of literacy were more likely than others to earn higher wages, to be employed more weeks per year, and to be employed in managerial and professional occupations.

Here we examine how teachers' wages compare to those of other college-educated adults at each level of literacy. We also compare the median weekly wages of teachers to the wages of other occupations within the managerial/professional category.

Figure 11 shows the median weekly wages earned by teachers and other college-educated adults at each of the five literacy levels. Level 1 data have not been included, since sample sizes are too small to permit reliable estimates.

In general, for both groups, earnings increase with the level of literacy. What the bars also show, however, is that there are differences in earnings between teachers and other college graduates at each literacy level. For example, teachers scoring

Figure 11: Median Weekly Wages for Teachers and Other College Graduates, by Literacy Level



N/A - insufficient sample sizes to permit reliable estimates.
Note: * indicates a statistically significant difference in wages at that level. While other differences may appear large, they are not considered statistically significant because of small cell sizes and large standard errors.

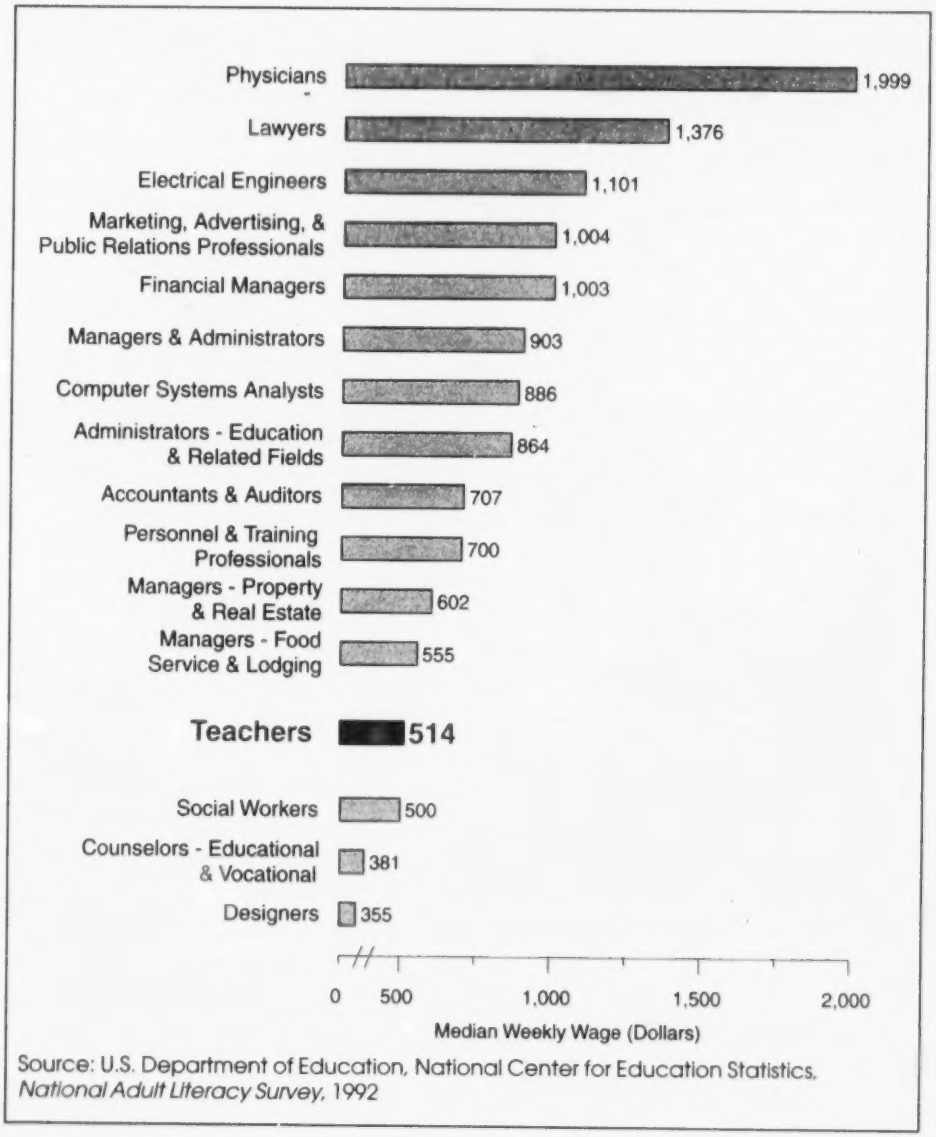
Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

at Level 5 on the prose scale earned $574 a week, compared to $796 a week earned by other college graduates, a statistically significant difference.

Finally, there are differences in average earnings between teachers and other managerial and professional workers. Median weekly wages are shown in Figure 12. Teachers appear near the very bottom of the list, earning a median wage of about $500 a week.[16] So while teachers' average literacy compares favorably with the average literacy of most other professional and managerial occupations, their compensation falls far short.

A 1998 report by the Organization for Economic Cooperation and Development (OECD) supports this observation and provides more current data. The report discloses that the United States devotes a smaller percentage of its national income to

Figure 12: Median Weekly Wages of Teachers Compared to Other Managers and Professionals



Source: U.S. Department of Education, National Center for Education Statistics, *National Adult Literacy Survey*, 1992

16 We recognize that higher-salary occupations, like lawyers and physicians, require professional degrees and advanced training. Teachers also work fewer weeks per year than other professionals. On average, teachers in the NALS study reported working 45 weeks per year, compared to 49 to 50 for most other professionals.

teachers' salaries than other countries. An experienced high school teacher in the United States earns 1.2 times the gross domestic product (GDP) per capita. Among the 29 OECD members, only the Czech Republic, Hungary, and Norway pay their high school teachers less when measured as a percentage of their GDPs. In Germany, Ireland, South Korea, and Switzerland, among others, teachers earn at least twice the GDP per capita. Moreover, the average teacher salary in the United States is significantly below that of other university graduates. In many other countries — such as Australia, France, and Britain — teacher salaries are actually higher than the salaries of other university graduates. Making matters worse, demands on teachers' time in the United States are extremely high. In fact, the OECD report states, the amount of time a typical U.S. middle school teacher spends in front of a classroom per year is 964 hours, among the highest in OECD countries.[17]

17 Ethan Bronner, "Other Countries Catching up to U.S. in Education, Study Finds," *The New York Times*, November 24, 1998.

Conclusion

This analysis has provided information that can be used to make some judgments about the capabilities of teachers in dealing with prose, document, and quantitative problems. While teachers display a considerable range of such skills (as all groups do), on the whole they perform very well. And contrary to popular media accounts, teachers perform about as well as other adults with similar levels of education. Across all three literacy scales — prose, document, and quantitative — teachers perform significantly higher than the general adult population and score at similar levels to other college-educated adults.

Teachers also perform well compared to other adults employed in professional and managerial jobs. The National Adult Literacy Survey showed that, in prose and document literacy, teachers scored significantly higher than professionals in several occupations and were outperformed only by computer systems analysts in prose literacy and by electrical engineers and computer systems analysts in document literacy. Teachers performed least well on the quantitative scale; however, most of whom they scored below were professionals employed in quantitatively oriented fields.

Finally, teachers earn less than other professionals, on average, even when the number of weeks worked per year is taken into account. A recent analysis by the Organization for Economic Cooperation and Development supports this finding and also concludes that teachers' salaries in the United States lag behind those in other countries, while U.S. teachers' workloads are often greater.

The National Adult Literacy Survey provides the first opportunity to answer several important questions: How literate are America's teachers? How do teachers compare to others with comparable education levels? How do teachers compare with other professionals?

While the NALS study is not necessarily the best measure of teachers' professional abilities, it does measure teachers' skills in handling prose and documents of a wide variety, as well as quantitative problems encountered in daily life. What we can take away from this analysis is the assurance that our teachers measure up well with those in other professions and those with similar levels of education. This is contrary to the national view that has developed, proving that we need to abandon the currently prevalent, negative stereotypes.

This analysis also shows we employ teachers for pay that is well below the market rate for their levels of prose, document, and quantitative problem solving. With the impending shortage of teachers and the apparent competitiveness of their skills, we need to give more attention to what we pay them, and to recognize the many options these capable people have in the American marketplace.

Appendix Table 1: Sample Size and Standard Errors, Average Prose Proficiency and Literacy Levels by Total Population, Teachers, and Education Level

			Level 1 225 or lower	Level 2 226 to 275	Level 3 276 to 325	Level 4 326 to 375	Level 5 376 or higher	Overall Proficiency
	N	WGT N	RPCT (SE)	RPCT (SE)	RPCT (SE)	RPCT (SE)	RPCT (SE)	PROF (SE)
Total Population	26,091	191,289	21 (0.4)	27 (0.6)	32 (0.7)	17 (0.4)	3 (0.2)	272 (0.6)
Teachers	641	4,298	1 (0.6)	8 (2.1)	34 (2.3)	45 (2.9)	12 (2.5)	330 (2.4)
Elementary	320	2,184	2 (1.0)	8 (2.2)	33 (3.4)	46 (4.5)	11 (3.1)	330 (3.4)
Secondary	197	1,282	1 (1.0)	9 (2.6)	32 (4.6)	46 (4.9)	12 (4.2)	330 (4.9)
Male	155	1,098	2 (1.7)	8 (3.4)	34 (5.7)	44 (5.6)	13 (4.9)	329 (6.5)
Female	486	3,200	1 (0.6)	8 (2.1)	34 (3.0)	45 (3.7)	11 (2.6)	330 (2.2)
Adults with Four-year Degree	2,534	17,804	4 (0.7)	11 (1.2)	35 (2.0)	40 (1.5)	10 (1.3)	322 (1.6)
Teachers with Four-year Degree	168	1,136	3 (1.7)	8 (3.6)	33 (5.0)	44 (6.5)	12 (3.4)	329 (4.7)
Adults with Graduate Studies/Degree	2,253	16,306	.2 (0.4)	7 (1.0)	28 (1.4)	47 (1.8)	16 (1.1)	336 (1.4)
Teachers with Graduate Studies/Degree	405	2,675	0+ (0.4)	6 (1.4)	33 (5.2)	49 (3.6)	13 (3.6)	335 (2.8)

n = sample size; WGT N = population size estimate / 1,000 (the sample sizes for subpopulations may not add up to the total sample sizes, due to missing data); RPCT = row percentage estimate; PROF = average proficiency estimate; (SE) = standard error of the estimate (the true population value can be said to be within 2 standard errors of the sample estimate with 95% certainty).

† Percentages less than 0.5 are rounded to 0.

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Appendix Table 2: Sample Size and Standard Errors, Average Document Proficiency and Literacy Levels by Total Population, Teachers, and Education Level

			Level 1 225 or lower	Level 2 226 to 275	Level 3 276 to 325	Level 4 326 to 375	Level 5 376 or higher	Overall Proficiency
	N	WGT N	RPCT (SE)	RPCT (SE)	RPCT (SE)	RPCT (SE)	RPCT (SE)	PROF (SE)
Total Population	26,091	191,289	23 (0.4)	28 (0.5)	31 (0.5)	15 (0.4)	3 (0.2)	267 (0.7)
Teachers	641	4,298	2 (1.0)	13 (3.2)	37 (2.9)	38 (4.1)	9 (1.9)	320 (2.1)
Elementary	320	2,184	3 (1.2)	13 (2.9)	37 (5.0)	38 (3.2)	10 (3.7)	320 (2.9)
Secondary	197	1,282	3 (2.3)	11 (3.5)	37 (3.7)	40 (4.4)	9 (3.5)	321 (4.9)
Male	155	1,098	2 (1.5)	12 (3.8)	36 (5.9)	39 (5.7)	10 (4.1)	323 (5.1)
Female	486	3,200	2 (1.2)	13 (2.4)	38 (3.5)	38 (4.5)	9 (2.6)	320 (2.2)
Adults with Four-year Degree	2,534	17,804	4 (0.5)	15 (1.3)	37 (1.5)	36 (1.2)	8 (1.2)	314 (1.4)
Teachers with Four-year Degree	168	1,136	4 (2.2)	12 (4.7)	36 (6.4)	36 (6.9)	11 (3.7)	318 (4.2)
Adults with Graduate Studies/Degree	2,253	16,306	3 (0.6)	10 (0.9)	34 (1.8)	41 (1.9)	12 (1.1)	326 (1.8)
Teachers with Graduate Studies/Degree	405	2,675	1 (1.1)	9 (2.2)	38 (3.4)	41 (4.4)	10 (2.3)	326 (2.2)

n = sample size; WGT N = population size estimate / 1,000 (the sample sizes for subpopulations may not add up to the total sample sizes, due to missing data); RPCT = row percentage estimate; PROF = average proficiency estimate; (SE) = standard error of the estimate (the true population value can be said to be within 2 standard errors of the sample estimate with 95% certainty).

† Percentages less than 0.5 are rounded to 0.

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Appendix Table 3: Sample Size and Standard Errors, Average Quantitative Proficiency and Literacy Levels by Total Population, Teachers, and Education Level

			Level 1 225 or lower	Level 2 226 to 275	Level 3 276 to 325	Level 4 326 to 375	Level 5 376 or higher	Overall Proficiency
	n	WGT N	RPCT (SE)	RPCT (SE)	RPCT (SE)	RPCT (SE)	RPCT (SE)	PROF (SE)
Total Population	26,091	191,289	22 (0.5)	25 (0.6)	31 (0.6)	17 (0.3)	4 (0.2)	271 (0.7)
Teachers	641	4,298	1 (0.4)	13 (2.2)	34 (2.4)	40 (2.5)	11 (2.3)	325 (2.6)
Elementary	320	2,184	1 (0.5)	12 (2.3)	36 (4.9)	40 (4.9)	11 (2.8)	325 (3.2)
Secondary	197	1,282	1 (1.1)	14 (3.8)	32 (6.0)	42 (6.0)	12 (4.0)	326 (5.0)
Male	155	1,098	1 (1.3)	10 (4.8)	30 (5.6)	43 (7.1)	16 (5.6)	333 (4.9)
Female	486	3,200	1 (0.5)	14 (2.3)	36 (2.9)	39 (3.4)	10 (2.0)	323 (2.9)
Adults with Four-year Degree	2,534	17,804	4 (0.5)	12 (1.0)	35 (1.4)	38 (1.4)	12 (1.1)	322 (1.2)
Teachers with Four-year Degree	168	1,136	0+ (0.5)	15 (3.7)	37 (5.7)	39 (5.1)	9 (5.2)	322 (4.5)
Adults with Graduate Studies/Degree	2,253	16,306	2 (0.5)	9 (0.8)	30 (1.4)	42 (1.7)	17 (1.4)	334 (1.3)
Teachers with Graduate Studies/Degree	405	2,675	0+ (0.4)	9 (2.0)	33 (2.9)	44 (2.9)	14 (2.8)	332 (2.9)

n = sample size; WGT N = population size estimate / 1,000 (the sample sizes for subpopulations may not add up to the total sample sizes, due to missing data); RPCT = row percentage estimate; PROF = average proficiency estimate; (SE) = standard error of the estimate (the true population value can be said to be within 2 standard errors of the sample estimate with 95% certainty).

† Percentages less than 0.5 are rounded to 0.

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Appendix Table 4: Sample Size and Standard Errors, Average Prose Proficiency and Literacy Levels by Professional and Managerial Occupational Category

			Level 1 225 or lower		Level 2 226 to 275		Level 3 276 to 325		Level 4 326 to 375		Level 5 376 or higher		Overall Proficiency	
	N	WGT N	RPCT	(SE)	RPCT	(SE)	RPCT	(SE)	RPCT	(SE)	RPCT	(SE)	PROF	(SE)
Lawyers	99	767	2	(1.5)	5	(4.3)	16	(5.3)	48	(8.8)	28	(9.1)	349	(7.1)
Computer Systems Analysts	134	968	1	(0.7)	3	(2.7)	24	(7.0)	50	(7.1)	22	(6.4)	347	(5.1)
Electrical Engineers	72	490	1	(0.8)	4	(3.3)	29	(6.5)	42	(8.4)	24	(7.4)	345	(6.4)
Accountants/Auditors	161	1,126	0+	(0.1)	5	(1.9)	29	(5.3)	50	(7.6)	16	(5.7)	341	(4.0)
Marketing, Advertising	100	704	2	(2.8)	6	(2.4)	29	(7.5)	45	(10.2)	18	(7.7)	337	(7.4)
Financial Managers	94	636	0+	(0.0)	4	(2.6)	38	(9.2)	45	(8.4)	14	(5.6)	336	(5.8)
Physicians	55	424	3	(2.6)	12	(7.2)	21	(12.0)	47	(8.8)	17	(8.9)	335	(8.8)
Personnel & Training	65	484	4	(4.6)	12	(6.7)	35	(9.2)	34	(11.1)	15	(7.6)	325	(10.8)
Social Workers	129	760	4	(2.0)	8	(5.3)	35	(8.5)	43	(7.9)	9	(5.5)	323	(6.4)
Administrators - Education	76	460	3	(4.7)	16	(9.1)	30	(9.4)	43	(9.3)	8	(5.3)	321	(8.2)
Managers & Administrators	540	4,277	5	(1.1)	16	(3.0)	36	(4.7)	35	(3.2)	9	(1.9)	315	(3.3)
Counselors - Education	58	395	8	(4.9)	14	(6.8)	36	(11.6)	40	(13.1)	2	(3.6)	310	(9.8)
Managers - Property	60	398	3	(2.6)	26	(10.0)	40	(12.1)	26	(10.7)	4	(4.2)	302	(7.2)
Designers	72	579	11	(6.8)	27	(11.0)	42	(12.7)	18	(8.7)	2	(2.0)	287	(7.1)
Managers - Food	72	526	10	(6.2)	33	(8.9)	34	(8.2)	18	(5.8)	5	(3.4)	287	(8.7)

n = sample size; WGT N = population size estimate / 1,000 (the sample sizes for subpopulations may not add up to the total sample sizes, due to missing data); RPCT = row percentage estimate; PROF = average proficiency estimate; (SE) = standard error of the estimate (the true population value can be said to be within 2 standard errors of the sample estimate with 95% certainty).

† Percentages less than 0.5 are rounded to 0.

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

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Appendix Table 5: Sample Size and Standard Errors, Average Document Proficiency and Literacy Levels by Professional and Managerial Occupational Category

			Level 1 225 or lower		Level 2 226 to 275		Level 3 276 to 325		Level 4 326 to 375		Level 5 376 or higher		Overall Proficiency	
	N	WGT N	RPCT	(SE)	RPCT	(SE)	RPCT	(SE)	RPCT	(SE)	RPCT	(SE)	PROF	(SE)
Lawyers	99	767	2	(1.8)	6	(4.8)	23	(7.5)	47	(8.1)	22	(7.8)	342	(7.4)
Computer Systems Analysts	134	968	1	(0.7)	5	(3.8)	28	(7.1)	50	(5.2)	16	(4.6)	340	(4.8)
Electrical Engineers	72	490	1	(0.8)	8	(4.7)	28	(8.4)	41	(12.7)	22	(6.2)	340	(5.8)
Accountants/Auditors	161	1,126	0+	(0.8)	5	(2.8)	35	(5.1)	46	(6.3)	14	(5.5)	334	(4.9)
Marketing, Advertising	100	704	1	(1.1)	10	(4.8)	35	(9.0)	44	(8.8)	10	(5.7)	329	(7.8)
Financial Managers	94	636	0+	(0.0)	13	(6.1)	40	(7.5)	39	(10.4)	8	(4.2)	323	(6.3)
Physicians	55	424	6	(4.6)	13	(10.6)	27	(9.3)	42	(9.8)	12	(5.7)	321	(9.2)
Personnel & Training	65	484	8	(5.8)	11	(10.3)	40	(9.1)	29	(9.9)	12	(9.2)	311	(13.0)
Social Workers	129	760	4	(2.4)	10	(3.8)	38	(7.5)	42	(8.1)	6	(4.2)	317	(6.7)
Administrators - Education	76	460	9	(4.9)	22	(7.2)	40	(9.6)	28	(7.6)	1	(1.7)	296	(8.1)
Managers & Administrators	540	4,277	6	(1.3)	16	(2.7)	40	(2.9)	32	(3.3)	6	(2.2)	309	(2.9)
Counselors - Education	58	395	8	(4.6)	19	(7.0)	42	(10.5)	29	(9.4)	1	(1.9)	300	(8.0)
Managers - Property	60	398	7	(3.2)	22	(7.5)	44	(11.9)	24	(8.6)	2	(3.3)	295	(7.5)
Designers	72	579	11	(5.5)	30	(12.0)	42	(9.6)	15	(8.1)	2	(2.0)	283	(8.0)
Managers - Food	72	526	11	(6.8)	44	(7.5)	24	(6.8)	18	(6.6)	3	(3.6)	279	(7.8)

n = sample size; WGT N = population size estimate / 1,000 (the sample sizes for subpopulations may not add up to the total sample sizes, due to missing data); RPCT = row percentage estimate; PROF = average proficiency estimate; (SE) = standard error of the estimate (the true population value can be said to be within 2 standard errors of the sample estimate with 95% certainty).

† Percentages less than 0.5 are rounded to 0.

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Appendix Table 6: Sample Size and Standard Errors, Average Quantitative Proficiency and Literacy Levels by Professional and Managerial Occupational Category

			Level 1 225 or lower	Level 2 226 to 275	Level 3 276 to 325	Level 4 326 to 375	Level 5 376 or higher	Overall Proficiency
	N	WGT N	RPCT (SE)	RPCT (SE)	RPCT (SE)	RPCT (SE)	RPCT (SE)	PROF (SE)
Lawyers	99	767	0+ (0.0)	4 (3.3)	24 (8.3)	47 (7.9)	25 (6.4)	349 (6.4)
Computer Systems Analysts	134	968	1 (0.7)	5 (3.3)	25 (5.8)	45 (7.4)	24 (5.7)	346 (6.1)
Electrical Engineers	72	490	0+ (0.3)	3 (2.0)	13 (4.4)	44 (9.4)	41 (8.1)	365 (5.7)
Accountants/Auditors	161	1,126	0+ (0.5)	4 (2.1)	25 (5.7)	51 (8.2)	20 (6.0)	346 (5.6)
Marketing, Advertising	100	704	1 (1.3)	5 (4.4)	35 (10.6)	47 (11.5)	12 (4.8)	335 (6.2)
Financial Managers	94	636	1 (1.0)	8 (4.6)	33 (6.8)	45 (7.6)	13 (3.7)	334 (6.4)
Physicians	55	424	2 (1.7)	14 (8.3)	22 (9.4)	43 (11.8)	18 (9.7)	335 (10.3)
Personnel & Training	65	484	7 (4.6)	16 (9.1)	32 (10.0)	28 (10.6)	17 (7.1)	319 (9.6)
Social Workers	129	760	4 (2.0)	14 (5.1)	36 (7.0)	37 (6.5)	9 (5.2)	317 (7.2)
Administrators - Education	76	460	6 (5.6)	20 (8.4)	30 (9.4)	35 (8.3)	9 (5.7)	311 (10.4)
Managers & Administrators	540	4,277	4 (1.1)	13 (2.6)	33 (5.0)	38 (5.2)	12 (3.2)	322 (3.1)
Counselors - Education	58	395	12 (6.8)	16 (5.4)	41 (11.1)	29 (11.7)	2 (3.8)	297 (11.1)
Managers - Property	60	398	3 (2.9)	30 (8.6)	37 (9.6)	26 (8.2)	4 (4.9)	300 (7.1)
Designers	72	579	13 (6.4)	27 (8.4)	36 (9.2)	21 (6.0)	4 (3.4)	290 (6.6)
Managers - Food	72	526	5 (3.0)	29 (7.3)	37 (6.9)	23 (6.8)	6 (3.6)	298 (8.0)

n = sample size; WGT N = population size estimate / 1,000 (the sample sizes for subpopulations may not add up to the total sample sizes, due to missing data); RPCT = row percentage estimate; PROF = average proficiency estimate; (SE) = standard error of the estimate (the true population value can be said to be within 2 standard errors of the sample estimate with 95% certainty).

† Percentages less than 0.5 are rounded to 0.

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

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Appendix Table 7: Standard Errors for Median Weekly Wages for Teachers and Other College Graduates

	Level 1 225 or lower	Level 2 226 to 275	Level 3 276 to 325	Level 4 326 to 375	Level 5 376 or higher
	SE	SE	SE	SE	SE
Prose					
Teachers	***	270.5	26.2	41.0	63.3
College Graduates	***	83.1	32.2	12.3	66.0
Document					
Teachers	***	161.1	19.8	74.9	66.6
College Graduates	***	77.5	29.3	20.1	23.8
Quantitative					
Teachers	***	75.5	20.0	59.6	58.7
College Graduates	***	23.9	23.6	46.1	212.6

(SE) = standard error of the estimate (the true population value can be said to be within 2 standard errors of the sample estimate with 95% certainty).

*** Sample size is insufficient to permit a reliable estimate.

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

Appendix Table 8: Standard Errors for Median Weekly Wages, Professional and Managerial Occupations

	SE
Lawyers	302
Computer Systems Analysts	15
Electrical Engineers	52
Accountants/Auditors	86
Marketing, Advertising	249
Financial Managers	2
Physicians	113
Personnel & Training	5
Social Workers	30
Administrators - Education	318
Managers & Administrators	44
Counselors - Education	76
Managers - Property	154
Designers	83
Managers - Food	145

(SE) = standard error of the estimate (the true population value can be said to be within 2 standard errors of the sample estimate with 95% certainty).

Source: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992.

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